

BOOK REVIEWS

EARTH SURFACE PROCESSES by Philip A. Allen, Blackwell Science, Oxford, 1997. No of pages: xi + 404. Price: £24.95 (pb). ISBN 0-632-03507-2.

Earth Surface Processes is a book with an ambitious aim. It attempts to provide a dynamic, physically based understanding of Earth surface processes. A dual approach is adopted. Part one of the book provides a holistic view of the Earth, considering processes at the global scale. Part two looks more locally and dissects the global system into its component parts which are dealt with in a rigorous and analytical manner. The book is divided into 11 chapters:

Part 1: Global

1. Fundamentals of the Earth surface system
2. Environmental change: past, present and future
3. Liberation and flux of sediment

Part 2: Local

4. Some fluid mechanics
5. Sediment transport
6. Hyperconcentrated and mass flows
7. Jets, plumes and mixing at the coast
8. Tides and waves
9. Ocean currents and storms
10. Wind
11. Glaciers

Division of material in this manner is difficult because explanation of the 'local' is often underpinned by understanding of the 'global', e.g. wind and tidal systems. Therefore, the inclusion of sections on Tides and Waves (Chapter 8), Ocean Currents and Storms (Chapter 9) and Wind (Chapter 10) in the local section and some of the material on sediment fluxes in Chapter 3 in the global section sit rather uncomfortably in the overall structure of the book. The book also ends rather abruptly. Chapter 2 on Environmental Change could have appeared as the last chapter in an attempt to draw together the components of the Earth surface system.

This could have been used to illustrate how a sound appreciation of physical processes (Chapters 3 to 11) can be used to understanding mechanisms of environmental change, e.g. glaciation, wind-blown deposits and sea-level change.

On the whole the book is well written and carefully produced. It is richly illustrated with very useful diagrams and many good examples. It is good to see that key mathematical concepts and equations are used openly and liberally. These are clearly presented and explained. Inclusion of practical exercises, and solutions, adds a useful dimension to the book which will be of value to the individual reader and class tutor. Each chapter is accompanied by a helpful list of references and suggestions for further reading. The text is followed by a reasonably comprehensive seven page index.

The author has done a good job of drawing together the threads of a highly diverse and immense topic. There are gaps in the coverage (e.g. treatment of permafrost is neglected) but as the author rightly acknowledges no volume of this type can be fully comprehensive. All in all this is a useful book which is a welcome addition to the growing volume of Earth science textbooks. However, to claim that 'This remarkable new textbook transcends traditional boundaries between sedimentology, physical geography and fluid mechanics, as part of a new agenda in earth sciences' rather overstates the case! Much of the material in the textbook can easily be found elsewhere. What is nice about this book is that it is a useful collection of material which is presented in a clear and concise manner. The book is intended for advanced undergraduate use. However, its broad scope makes it difficult to recommend for individual courses. Nevertheless it would be a useful general purchase for students studying science-based subjects such as physical geography, environmental science, geology and some aspects of engineering.

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